UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,759	07/13/2007	Kare T. Christensen	4436-0132PUS1	9657

2292 7590 08/18/2009

BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER
ELBIN, JESSE A

ART UNIT	PAPER NUMBER
2614	

NOTIFICATION DATE	DELIVERY MODE
08/18/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/589,759	CHRISTENSEN ET AL.	
	Examiner	Art Unit	
	JESSE A. ELBIN	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 10-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 10-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed May 26, 2009 has been entered as a result of the Request for Continued Examination filed June 29, 2009.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In *re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-8 and 10-17 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7 of US Patent 7,450,078 in view of the prior art of record.

While the claim language between the two applications is not identical, the differences were not found to patentably distinguish the claims of the two applications in view of the prior art of record. See art rejections below.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 2, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maltan et al. (US PGPub 2003/0086583 ('583)) (already of record) in view of Bartschi et al. (US Patent 5,734,976 ('976)) (already of record) in view of Adelman (US Patent 5,390,254 ('254)).

Regarding claim 1, Maltan teaches a communication device ('583 Fig. 6A #60) adapted for placement in a users ear (Fig. 1 *wherein* "a distal end of the module 60 resides at the opening 38"; '583 [0036] lines 4-5), the device comprising: a custom-made shell part (case; '583 Fig. 6A #61) enclosing an input transducer (e.g. microphone; '583 Fig. 6A #80) for receiving an input signal, a signal processing device (electronic sub-module; '583 Fig. 6A #83) and an output transducer (speaker sub-module; '583 Fig. 6A #82) for providing a signal perceivable as sound, a battery (power source sub-module; '583 Fig. 6A #84), and a transmission and reception circuit (antenna sub-module; '583 Fig. 6A #80) for transmission and/or reception of electromagnetic energy, the transmission and reception circuit including an antenna ('583 Fig. 6A #64) for radiating and/or receiving electromagnetic energy, the antenna

being disposed in relation to the battery (‘583 Fig. 6A) such that the antenna has a first surface facing away from the battery (i.e. *the side facing the* ‘left side’ *of* ‘583 Fig. 6A) and a second surface facing towards the battery (i.e. *the side facing the* ‘right side’ *of* ‘583 Fig. 6A), the antenna and battery further being situated in close proximity to each other (‘583 Fig. 6A) such that the battery (“such as a rechargeable battery and/or super capacitor”; ‘583 [0057] lines 7-8) is an electromagnetic shield between the antenna and other parts of the communication device circuitry (‘583 Fig. 6A *illustrates the* "power source sub-module” *being between the* “electronic sub-module" *and the* "microphone and antenna sub-module" *in the tubular design; therefore the battery would inherently serve to shield the microphone and antenna from the e.g. digital noise emitted by the electronic processing module*), thereby preventing the antenna from becoming de-tuned as a result of variations in the position of the other circuitry in the device, and also such that the battery is a ground plane for the antenna (‘583 Fig. 1 #10 *at terminal* ‘f’; wherein IEEE 100:2000 defines a “ground plane” as simply: “ground plane (1) A conducting surface or plate used as a common reference point for circuit returns and electric or signal potentials”).

Maltan does not explicitly teach the battery being located at a surface part of the shell which is facing away from the head of the user.

In the same field of endeavor, Bartschi teaches the battery being located at a surface part of the shell which is facing away from the head of the user (‘976 Fig. 3 *illustrates the battery* ‘B1’ *abutting a surface indicated by the hashed area between* #34 *and* ‘B1’) for the benefit of providing mechanical rigidity to the battery mounting location.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the shell portion taught by Bartschi with the tubular hearing aid design taught by Maltan for the benefit of providing mechanical rigidity to the battery mounting location.

Neither Maltan nor Bartschi explicitly teaches the antenna being a “planar antenna”.

In the same field of endeavor, Adelman teaches use of a “loop antenna” (‘254 Fig. 1E#78) for “any radio frequency transmitter or receiver devices that might be used in conjunction with the hearing aid” (‘254 col. 11 lines 32-34) for the obvious benefit of reducing the spatial volume required by the antenna.

It would have been obvious to one of ordinary skill in the art at the time of the invention to try the loop antenna design suggested by Adelman, being one of several common miniaturized antenna configurations, as the antenna taught by Maltan for the obvious benefit of reducing the spatial volume required by the antenna.

Regarding claim 2, the combination of Maltan, Bartschi, and Adelman remains as applied above.

Maltan further teaches the antenna being tuned to radiate and/or receive electromagnetic energy in the frequency range of 50 MHz to 50 GHz (“One possible RF telecommunications link that may be used for the links 76 and/or 77 is known as Bluetooth”; [0044] lines 1-2).

Regarding claim 7, the combination of Maltan, Bartschi, and Adelman remains as applied above.

Adelman further suggests the antenna ('254 Fig. 1E #78) covering a surface area of the shell which is wider than the projection of the battery ('254 Fig. 1D #54) onto a faceplate surface ('254 Fig. 1E). While Adelman is not explicit in this teaching, Fig. 1E illustrates the antenna (#78) as having a radius about equal to the diameter of the batteries (Fig. 1D #54). This particular relationship would yield a surface area covered by the antenna that is twice that covered by both batteries. While Adelman also does not indicate the drawings being to scale, the specific size of the antenna and batteries would be left to the designer based on, e.g. the specific "devices that might be used in conjunction with the hearing aid" ('254 col. 11 lines 33-34).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use an antenna as defined by claim 7 in the device taught by the combination of Maltan, Bartschi, and Adelman based on the suggested dimension and uses for the antenna taught by Adelman.

7. Claims 10, 11, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maltan et al. (US PGPub 2003/0086583 ('583)) (already of record) in view of Adelman (US Patent 5,390,254 ('254)).

Regarding claim 10, Maltan teaches a method of shielding an antenna in a hearing aid from de-tuning or electromagnetic noise effects caused by other

components in the hearing aid, the method comprising: preventing the antenna from becoming de-tuned as a result of the position of other hearing aid circuitry located inside said hearing aid by disposing the antenna (Fig. 6A #64), which is part of a transmission and reception circuit (microphone and antenna sub-module; Fig. 6A #80), in close proximity to a battery (power source sub-module; Fig. 6A #84) situated inside the hearing aid such that the antenna has one surface facing in a sound-gathering direction (i.e. *the side facing the* 'left side' *of* Fig. 6A) of the heading aid and an opposite surface facing towards the battery (i.e. *the side facing the* 'right side' *of* Fig. 6A), said preventing including electromagnetically shielding the antenna with respect to the other hearing aid components (Fig. 6A *illustrates the* "power source sub-module" *being between the* "electronic sub-module" *and the* "microphone and antenna sub-module" *in the tubular design; therefore the battery would serve to shield the microphone and antenna from the e.g. digital noise emitted by the electronic processing module*) and arranging the battery as a ground plane for the antenna (Fig. 1 #10 *at terminal* 'f'; wherein IEEE 100:2000 defines a "ground plane" as simply: "ground plane (1) A conducting surface or plate used as a common reference point for circuit returns and electric or signal potentials").

Maltan does not explicitly teach the antenna being a "planar antenna".

In the same field of endeavor, Adelman teaches use of a "loop antenna" (Fig. 1D #78) for "any radio frequency transmitter or receiver devices that might be used in conjunction with the hearing aid" ('254 col. 11 lines 32-34) for the obvious benefit of reducing the spatial volume required by the antenna.

It would have been obvious to one of ordinary skill in the art at the time of the invention to try the loop antenna design suggested by Adelman, being one of several common antenna configurations, as the antenna taught by Maltan for the obvious benefit of reducing the spatial volume required by the antenna.

Regarding claim 11, the combination of Maltan and Adelman remains as applied above.

Maltan further teaches the antenna being tuned to radiate and/or receive electromagnetic energy in the frequency range of 50 MHz to 50 GHz ("One possible RF telecommunications link that may be used for the links 76 and/or 77 is known as Bluetooth"; [0044] lines 1-2).

Regarding claim 16, the combination of Maltan and Adelman remains as applied above.

Adelman further suggests the antenna ('254 Fig. 1E #78) covering a surface area of the shell which is wider than the projection of the battery ('254 Fig. 1D #54) onto a faceplate surface ('254 Fig. 1E). While Adelman is not explicit in this teaching, Fig. 1E illustrates the antenna (#78) as having a radius about equal to the diameter of the batteries (Fig. 1D #54). This particular relationship would yield a surface area covered by the antenna that is twice that covered by both batteries. While Adelman also does not indicate the drawings being to scale, the specific size of the antenna and batteries

would be left to the designer based on, e.g. the specific “devices that might be used in conjunction with the hearing aid" (‘254 col. 11 lines 33-34).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use an antenna as defined by claim 7 in the device taught by the combination of Maltan, Bartschi, and Adelman based on the suggested dimension and uses for the antenna taught by Adelman.

8. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maltan et al. (US PGPub 2003/0086583 (‘583)) (already of record) in view of Bartschi et al. (US Patent 5,734,976 (‘976)) (already of record) in view of Adelman (US Patent 5,390,254 (‘254)) as applied to claim 1 above, and further in view of Niederdrank et al. (US PGPub 2008/0095387 (‘387)) (already of record).

Regarding claim 3, the combination of Maltan, Bartschi, and Adelman remains as applied above.

Neither Maltan, Bartschi, nor Adelman explicitly teaches the antenna being shaped as a part of a flexprint.

In the same field of endeavor, Niederdrank teaches forming an antenna coil within part of the circuit board within the hearing aid (‘387 Fig. 3) for the benefit of reducing the space required for the antenna.

It would have been obvious to one of ordinary skill in the art at the time of the invention to create an antenna coil as taught by the combination of Maltan and Bartschi

within the circuit board inside a hearing aid as taught by Niederdrank for the benefit of reducing the space required for the antenna.

While Niederdrank does not explicitly teach the circuit board being a "flexprint", use of flexible circuits within a hearing aid is well known. The volume contained within the shell of a hearing aid worn within the ear canal of a user is of variable size and shape. As such, rigid circuit boards are rarely used. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a “flexprint” circuit board as the circuit board used to create the antenna as taught by the combination of Maltan, Bartschi, and Niederdrank.

Regarding claim 8, the combination of Maltan, Bartschi, and Adelman remains as applied above.

Neither Maltan, Bartschi, nor Adelman explicitly teaches the antenna also being a charging loop for the battery.

In the same field of endeavor, Niederdrank teaches the integrated hearing aid antenna (‘387 Fig. 3) also being a charging loop for the battery (used as a power supply; ‘387 [0037] last 4 lines) for the benefit of reducing the need to change batteries.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the charging loop into the power supply circuit as taught by Niederdrank in the hearing aid taught by the combination of Maltan and Bartschi for the benefit of reducing the need to change batteries.

9. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maltan et al. (US PGPub 2003/0086583 ('583)) (already of record) in view of Bartschi et al. (US Patent 5,734,976 ('976)) (already of record) in view of Adelman (US Patent 5,390,254 ('254)) as applied to claim 1 above, further in view of Van Vroenhoven (WO 99/48330 ('330)) (already of record).

Regarding claim 4, the combination of Maltan, Bartschi, and Adelman remains as applied above.

Neither Maltan, Bartschi, nor Adelman explicitly teaches the antenna being embedded in a face plate and/or battery drawer.

In the same field of endeavor, Van Vroenhoven teaches an electromagnetic antenna (Fig. 1 #9) being embedded in a face plate and/or battery drawer (Fig. 1 #7) for the benefit of incorporating the antenna into the hearing aid without using up any volume inside the hearing aid housing.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the antenna taught by the combination of Maltan, Bartschi, and Adelman into the battery lid as taught by Van Vroenhoven for the benefit of incorporating the antenna into the hearing aid without using up any volume inside the hearing aid housing.

Regarding claim 5, the combination of Maltan, Bartschi, Adelman, and Van Vroenhoven remains as applied above.

Maltan further suggests the antenna being a metal part ("coil windings of the antenna 64 are physically located within the head portion 81"; [0055] end).

Regarding claim 6, the combination of Maltan, Bartschi, and Adelman remains as applied above.

Neither Maltan, Bartschi, nor Adelman explicitly teaches the antenna being manufactured by deposition of metal material on surface parts of the faceplate and/or battery drawer.

In the same field of endeavor, Van Vroenhoven teaches an electromagnetic antenna being incorporated into the battery replacement lid (Fig. 1 #7) for the benefit of incorporating the antenna into the hearing aid without using up any volume inside the hearing aid housing.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the antenna taught by the combination of Maltan, Bartschi, and Adelman into the battery lid as taught by Van Vroenhoven for the benefit of incorporating the antenna into the hearing aid without using up any volume inside the hearing aid housing.

10. Claims 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maltan et al. (US PGPub 2003/0086583 ('583)) (already of record) in view of Adelman (US Patent 5,390,254 ('254)) as applied to claim 10 above, in view of Niederdrank et al. (US PGPub 2008/0095387 ('387)) (already of record).

Regarding claim 12, the combination of Maltan and Adelman remains as applied above.

Neither Maltan nor Adelman explicitly teaches the antenna being shaped as a part of a flexprint.

In the same field of endeavor, Niederdrank teaches forming an antenna coil within part of the circuit board within the hearing aid ('387 Fig. 3) for the benefit of reducing the space required for the antenna.

It would have been obvious to one of ordinary skill in the art at the time of the invention to create an antenna coil as taught by the combination of Maltan and Adelman within the circuit board inside a hearing aid as taught by Niederdrank for the benefit of reducing the space required for the antenna.

While Niederdrank does not explicitly teach the circuit board being a "flexprint", use of flexible circuits within a hearing aid is well known. The volume contained within the shell of a hearing aid worn within the ear canal of a user is of variable size and shape. As such, rigid circuit boards are rarely used. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a "flexprint" circuit board as the circuit board used to create the antenna as taught by the combination of Maltan and Niederdrank.

Regarding claim 17, the combination of Maltan and Adelman remains as applied above.

Neither Maltan nor Adelman explicitly teaches the antenna also being a charging loop for the battery.

In the same field of endeavor, Niederdrank teaches the integrated hearing aid antenna ('387 Fig. 3) also being a charging loop for the battery (used as a power supply; '387 [0037] last 4 lines) for the benefit of reducing the need to change batteries.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the charging loop into the power supply circuit as taught by Niederdrank in the hearing aid taught by the combination of Maltan and Adelman for the benefit of reducing the need to change batteries.

11. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maltan et al. (US PGPub 2003/0086583 ('583)) (already of record) in view of Adelman (US Patent 5,390,254 ('254)) as applied to claim 10 above, in view of Van Vroenhoven (WO 99/48330 ('330)) (already of record).

Regarding claim 13, the combination of Maltan and Adelman remains as applied above.

Neither Maltan nor Adelman explicitly teaches the antenna being embedded in a face plate and/or battery drawer.

In the same field of endeavor, Van Vroenhoven teaches an electromagnetic antenna (Fig. 1 #9) being embedded in a face plate and/or battery drawer (Fig. 1 #7) for

the benefit of incorporating the antenna into the hearing aid without using up any volume inside the hearing aid housing.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the antenna taught by the combination of Maltan and Adelman into the battery lid as taught by Van Vroenhoven for the benefit of incorporating the antenna into the hearing aid without using up any volume inside the hearing aid housing.

Regarding claim 14, the combination of Maltan, Adelman, and Van Vroenhoven remains as applied above.

Maltan further suggests the antenna being a metal part ("coil windings of the antenna 64 are physically located within the head portion 81"; [0055] end).

Regarding claim 15, the combination of Maltan and Adelman remains as applied above.

Neither Maltan nor Adelman explicitly teaches the antenna being manufactured by deposition of metal material on surface parts of the faceplate and/or battery drawer.

In the same field of endeavor, Van Vroenhoven teaches an electromagnetic antenna being incorporated into the battery replacement lid (Fig. 1 #7) for the benefit of incorporating the antenna into the hearing aid without using up any volume inside the hearing aid housing.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the antenna taught by the combination of Maltan and Adelman into the battery lid as taught by Van Vroenhoven for the benefit of incorporating the antenna into the hearing aid without using up any volume inside the hearing aid housing.

Response to Arguments

12. Applicant's arguments with respect to claims 1-8 and 10-17 have been considered but are moot in view of the new ground(s) of rejection.

13. Applicant's arguments filed June 29, 2009 have been fully considered but they are not persuasive. Specifically, Applicant argues that "Maltan is completely silent with respect to any kind of electromagnetic interaction between the battery and the antenna" (p. 7 second paragraph). While Examiner agrees that Maltan does not specifically detail the electromagnetic interaction, that one skilled in the art would see the benefits of placing the antenna and battery in the configuration taught by Maltan based on the electromagnetic benefits. The battery's metal case and current source/sink would naturally serve as a "ground plane" to shield the signal processing components from electromagnetic interference (EMI).

14. Applicant further argues that "there are no concerns regarding de-tuning of the antenna because the dimensions of the tunnel are controlled and adapted to the dimensions of Maltan's device" (p. 7 third paragraph). Examiner respectfully disagrees with this assertion, as any device designed to transmit or receive electromagnetic

radiation is naturally susceptible to interference. Designers must mitigate said interference, and most commonly do so by shielding components. While Maltan does not explicitly teach shielding the signal processing components, the metal battery case and current sink would naturally shield the signal processing components from the antenna. While Examiner agrees that "Maltan's invention obviates the need for such shielding and grounding", it is not due to the "dimensions of the tunnel", rather the specific arrangement of the electronics within the tunnel.

15. Applicant's arguments relating to the "ground plane" have been considered, but in view of the definition supplied by IEEE 100:2000 ("ground plane (1) A conducting surface or plate used as a common reference point for circuit returns and electric or signal potentials"), the flat surfaces of the standard hearing aid batteries naturally serve as a "ground plane".

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSE A. ELBIN whose telephone number is (571)270-3710. The examiner can normally be reached on Monday through Friday, 9:00am to 6:00pm EDT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on (571) 272-7499. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. A. E./
Examiner, Art Unit 2614
/CURTIS KUNTZ/
Supervisory Patent Examiner, Art Unit 2614